

# ISOMER AND BETA-DECAY STUDIES OF NUCLEI NEAR $^{78}\text{Ni}$

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Research on neutron rich nuclei near the doubly magic  $^{78}\text{Ni}$  has attracted considerable interest in recent years. According to theoretical predictions, large neutron excesses in the nuclear system can affect the nucleon-nucleon interaction and result in changes to the traditional shell gaps and magic numbers. Moreover, these nuclei play an important role in r-process nucleosynthesis. Several experimental and theoretical studies have therefore been carried out in this region [1-4].

New experimental results will be reported. The current experiment involved the study of isomeric states and  $\beta$  decay of isotopes close to  $^{78}\text{Ni}$ . The nuclei of interest were produced in the fragmentation of 140 A·MeV  $^{86}\text{Kr}$  in a  $^9\text{Be}$  target. The reaction products were separated according to their mass-to-charge ratio and nuclear charge using the A1900 spectrometer at the NSCL and implanted into a double-sided silicon strip detector to detect both heavy ions and their subsequent  $\beta$ -decay. The implantation detector was surrounded by an array of germanium detectors used to detect and identify both prompt and  $\beta$ -delayed  $\gamma$ -rays. Decay data were obtained for several isotopes. The cases of  $^{76m}\text{Ni}$  and  $^{71-74}\text{Co}$ , in particular, will be discussed in comparison with theoretical predictions.

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